This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D4716/D4716M – 22

Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head[1]

This standard is issued under the fixed designation D4716/D4716M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the procedure for determining the flow rate per unit width within the manufactured plane of geosynthetics under varying normal compressive stresses and a constant head. The test is intended primarily as an index test but can be used also as a performance test when the hydraulic gradients and specimen contact surfaces are selected by the user to model anticipated field conditions.

1.2 This test method is limited to geosynthetics that allow continuous in-plane flow paths to occur parallel to the intended direction of flow.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D4354 Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing

D4439 Terminology for Geosynthetics

D4491/D4491M Test Methods for Water Permeability of Geotextiles by Permittivity

D5092/D5092M Practice for Design and Installation of Groundwater Monitoring Wells

D5199 Test Method for Measuring the Nominal Thickness of Geosynthetics

D6574/D6574M Test Method for Determining the (In-Plane) Hydraulic Transmissivity of a Geosynthetic by Radial Flow

D7361 Test Method for Accelerated Compressive Creep of Geosynthetic Materials Based on Time-Temperature Superposition Using the Stepped Isothermal Method

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

3. Terminology

3.1 *Definitions:*

3.1.1 *geocomposite, n*—a product fabricated from any combination of geosynthetics with geotechnical materials or other synthetics which is used in a geotechnical application. **(D4439)**

3.1.2 *geonet, n*—a geosynthetic consisting of integrally connected parallel sets of ribs overlying similar sets at various angles for planar drainage of liquids or gases. **(D4439)**

3.1.3 *geosynthetic, n*—a planar product manufactured from polymeric material used with soil, rock, earth, or other geotechnical engineering related material as an integral part of a man-made project, structure, or system. **(D4439)**

3.1.4 *geotechnics, n*—the application of scientific methods and engineering principles to the acquisition, interpretation, and use of knowledge of material of the earth's crust to the solution of engineering problems.

[1] This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.03 on Permeability and Filtration.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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